

REMARKS

This is in response to the Office Action dated April 1, 2009. Claims 3, 6, and 12 have been amended. Claims 4 and 13-16 have been cancelled. Claims 17 and 18 have been added. Accordingly, claims 3, 6, 8, 10, 12, 17, and 18 are pending. Reconsideration of the present application in view of the foregoing amendments and the following remarks is respectfully requested.

Claims 6 and 12 have been amended to put these claims in better form for examination. Claim 6 now recites “the laser beam.” Claim 12 now recites “a bubble pit.”

Rejections Under 35 U.S.C. § 112, Second Paragraph

The Examiner rejected claims 3 and 4 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The Examiner suggested that these claims be amended to indicate at what wavelength light absorption coefficients are observed. Office Action, page 2, paragraph 2. Claim 3 has been amended and now recites “a light absorption coefficient k equal to or larger than 0.39 and equal to or lower than 1.0 with respect to the laser beam having a wavelength of 635 nm to 675 nm or a wavelength of 390 nm to 420 nm.” Accordingly, it is respectfully submitted that the rejection of claim 3 should be withdrawn.

Claim 4 has been cancelled herein rendering the rejection of claim 4 moot.

Rejections Under 35 U.S.C. § 102(b)

The Examiner rejected claims 3, 6, 8, 10, and 12 under 35 U.S.C. § 102(b) as being anticipated by Applied Physics Letters 83, 1701 (2003) authored by J. Kim, I. Hwang, D. Yoon, I. Park, and D. Shin (“the Kim reference”). It is respectfully submitted that the Kim reference does not anticipate claims 3, 6, 8, 10, and 12 because the Kim reference fails to identically teach every element of amended independent claim 3. *See* M.P.E.P. § 2131 (stating that in order to anticipate a claim, a prior art reference must identically teach every element of the claim).

Independent claim 3 recites, among other things, a decomposition reaction layer containing platinum oxide (PtOx), wherein x is equal to or larger than 1.5. In contrast, the Kim reference discloses a PtOx layer with an x of 1.1. *See, e.g.*, page 1702. Thus, the Kim reference does not disclose every limitation of Applicants' claim 3.

Dependent claims 6, 8, 10, and 12 are allowable as depending from the allowable base claim 3, as well as for novel and non-obvious combinations of elements recited therein.

Rejections Under 35 U.S.C. § 103(a)

The Examiner rejected claims 3, 6, 8, 10, 12, 13, and 15 under 35 U.S.C. § 103(a) as being unpatentable over the Kim reference in view of Japanese Journal of Applied Physics, 42 (2003) 3479 by T. Shima and J. Tominaga ("the Shima reference"). Claim 4 was rejected under 35 U.S.C. § 103(a) as being unpatentable over the Kim reference in view of U.S. Patent No. 7,390,547 to Kim *et al.* ("the '547 patent"). Claims 13 and 14 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over the Kim reference and further in view of Journal of Applied Physics 86 6084(1999) by K.L. Saenger, C. Cabral, Jr., C. Lavoie, and S.M. Rossnagel. Claim 16 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over the Kim reference in view of the Shima reference and further in view of RF Sputtered Aluminum Oxide Films on Silicon, Toronto University Department of Electrical Engineering (1970) authored by Salama. For at least the reasons set forth below, these rejections are respectfully traversed.

Independent claim 3

The limitations of previously pending dependent claim 4 have been incorporated into independent claim 3. Claim 4 was rejected under 35 U.S.C. § 103(a) as being unpatentable over the Kim reference in view of the '547 patent. Accordingly, Applicants present arguments directed to the Examiner's rejection of claim 4.

Neither the Kim Reference Nor the '547 Patent Discloses the Claimed Limitations

The Kim reference and the '547 patent, alone or in combination, fail to disclose each and every limitation of claim 3. Claim 3 now recites, among other things, a decomposition reaction layer containing PtOx with an x value equal to or larger than 1.5 and also with a light absorption coefficient *k* equal to or larger than 0.39 and equal to or lower than 1.0 with respect to

a laser beam having a wavelength of 635 nm to 675 nm or a wavelength of 390 nm to 420 nm. The Kim reference discloses the PtOx layer with an x value of 1.1. The '547 patent merely discloses a PtOx layer with a positive x value. There are positive x values (*e.g.*, x values not equal to or larger than 1.5) that fall outside of the x recited in claim 3. The '547 patent thus fails to disclose the deficiencies of the Kim reference.

Claim 3 includes not only the listed features, but also recites a particular relationship among the features that is not taught or suggested by the cited references. There must be evidence that a "skilled artisan, confronted with the same problems as the inventor and with no knowledge of the claimed invention, would select the elements from the cited prior art references for ***combination in the manner claimed.***" *In re Rouffet*, 149 F.3d 1350, 1357, 47 U.S.P.Q.2d 1453, 1456 (Fed. Cir. 1998) (emphasis added); *see also In re Werner Kotzab*, 217 F.3d 1365, 1371, 55 U.S.P.Q.2d 1313, 1317 (Fed. Cir. 2000). It is well established that when a rejection for obviousness depends on a combination of elements disclosed in prior art references, the Examiner must establish that the prior art references teach elements and their particular relationship limitations as claimed by an applicant, because "there must be a teaching or suggestion within the prior art . . . to select particular elements, and to ***combine them in the way they were combined by the inventor.***" *ATD v. Lydall Inc.*, 159 F.3d 534, 546, 48 U.S.P.Q.2d 1321, 1329 (Fed. Cir. 1998) (emphasis added); *see also In re Dance*, 160 F.3d 1339, 1343, 48 U.S.P.Q.2D 1635 (Fed. Cir. 1998). Claim 3 recites, for example, a laminated body with a decomposition reaction layer with a particular relationship between its composition and its light absorption coefficient. Claim 3 further clarifies the relationship by reciting that x of the PtOx is equal to or larger than 1.5, and the light absorption coefficient *k* is equal to or larger than 0.39 and equal to or lower than 1.0 with respect to the laser beam having a wavelength of 635 nm to 675 nm or a wavelength of 390 nm to 420 nm. Neither the Kim reference nor the '547 patent makes any mention or even recognizes such a relationship as important. Applicants were the first to recognize the desirability of the claimed relationship between the specific PtOx of the decomposition reaction layer and the range of light absorbing coefficients. Accordingly, the limitations recited in claim 3 are inventive over the Kim reference and the '547 patent.

Office Action Improperly Relies on Table 1 in Applicants' Application to Allege Inherency

The M.P.E.P. states that in “relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art.” M.P.E.P. §2112(IV), citing to *Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990). The Office Action improperly relies on Table 1 in Applicants' originally filed application to broadly conclude that the Kim reference discloses a PtOx layer with specific absorption coefficients. See, e.g., Office Action, page 7. The Office Action states that the PtOx layer in the Kim reference will have an inherent light absorption coefficient equal to or lower than 1.0. Applicants respectfully disagree. It is well known in the art that the optical characteristics of a thin film layer will greatly vary depending upon a number of variables, including: impurities contained in the material, the thin film forming process, vacuum pressure, temperature of the substrate, thin film forming rate, etc. See, e.g., *Technique for Designing, Forming and Estimating Optical Thin Films at a Production Site*, by Takahashi (attached). Applicants' Table 1 is based on decomposition reaction layers formed using specific sputtering processes that rely on specific sputtering powers, gas pressures, gas flow rates, and film forming rates. See, e.g., page 34, line 1 to page 46, line 4. Neither the Kim reference nor the '547 patent discloses the importance of these processing parameters, much less values of these processing parameters needed to arrive at Applicants' invention. The Office Action improperly relies on Table 1 and ignores the various parameters that can appreciably affect the absorption coefficient. Because the optical characteristics of a thin film layer will greatly vary depending upon a number of variables, it is not necessarily inherent that the modified PtOx layer in the Kim reference would have a light absorption coefficient k equal to or larger than 0.39 and equal to or lower than 1.0, as recited in claim 3.

One of Ordinary Skill in the Art Would Not be Motivated to Make the Office Action's Proposed Modifications to the Kim Reference

It is respectfully submitted that the teachings of the Kim reference would deter one of ordinary skill in the art from making the modifications proposed in the Office Action. A

prior art reference must be considered in its entirety, *i.e.*, as a whole, including portions that would lead away from the claimed invention. M.P.E.P. § 2141.02(VI); *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 U.S.P.Q. 303 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984). The Office Action states that one of ordinary skill in the art would modify the PtOx layer in the Kim reference to obtain an x value of 1.7 based on a reasonable expectation of success. See, *e.g.*, Office Action, page 7. Applicants respectfully disagree because the Kim reference itself evidences the unpredictability of the technology and the lack of a reasonable expectation of success. The Kim reference specifically discloses that it is not known how laser light interacts with both the PtOx layer and AgInSbTe (“AIST”) layers. Page 1703, first and second columns. The Office Action nevertheless broadly asserts that it is obvious to increase the x value in the Kim PtOx layer, even though the composition of the PtOx layer impacts performance. Changing the x value could affect the oxygen gas production, bubble formation, and deformation of other layers, such as the AIST layers, thereby destroying disk performance. The potential changes to the Kim disk are virtually limitless, and there is no teaching in the Kim reference regarding how to change the layer compositions, layer thicknesses, or recording power if an x value of a PtOx layer is equal to or greater than 1.5, as proposed in the Office Action. Consequently, the Kim reference provides a lack of reasonable expectation of success and, thus, supports a finding of non-obviousness.

Applicants have also demonstrated that there are x values of a PtOx layer that provide unsatisfactory performance. As shown in Table 1 of the originally filed application, there are x values less than 1.5 that result in non-reproducible signals and poor signal characteristics. For example, Applicants found that it was “impossible to evaluate the signal characteristics of the reproduced signal obtained from the optical recording disc sample #4” with the x of 0.6, as shown in Table 1. Originally filed application, page 42, lines 18-24. A person skilled in the art would not be able to select any positive x for a PtOx layer and reasonably expect to produce an operable disk.

Additionally, the characteristics of a disk can vary greatly based on a wide range of different processing parameters during fabrication. Slight changes in these processing parameters, such as those noted above, may significantly alter the characteristics of the mark

trains, thereby impacting carrier-to-noise values, variations in carrier-to-noise values, the stability of the disk, the stability of signal reproduction, and the resolution limits. The Kim reference discloses specific layer compositions and specific layer thicknesses to achieve precise deformation of the ductile layers (*e.g.*, AIST layers with a thickness of 12 nm and a ZnS-SiO₂ layer with a thickness of 25 nm in Figure 1 of the Kim reference) due to controlled expansion of the PtOx layer caused by decomposition of the PtOx layer. Indeed, the Kim reference stresses the importance of the rigid elliptical bubble formation, which is dependent on the ductility of the AIST layers and the partial melting of the AIST layers. Kim reference, page 1702, first column. The technical challenges in selecting layer thicknesses, compositions, and desired properties would deter one of ordinary skill in the art from modifying the Kim reference as proposed in the Office Action. Thus, one of ordinary skill in the art would not modify the PtOx layer of the Kim reference with a small x value of 1.1 to somehow arrive at the claimed invention.

Dependent Claims

Dependent claims 6, 8, 10, and 12 are allowable as depending from the allowable base claim 3, as well as for novel and non-obvious combinations of elements recited therein.

New Claims

Claims 16 and 17 have been added. These claims are fully supported by the application as filed. No new matter has been added. The cited references fail to disclose the limitations of claims 16 and 17. Consideration of new claims 16 and 17 is respectfully requested.

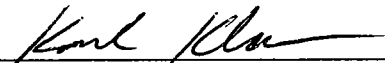
Conclusion

It is respectfully submitted that the pending claims are in condition for allowance. Applicants do not acquiesce to each of the Examiner's rejections and to each of the Examiner's assertions regarding what the cited references show or teach, even if not expressly discussed herein. Although changes to the claims have been made, no acquiescence or estoppel is or should be implied thereby; such amendments are made to expedite prosecution of the present

application and are without prejudice to the presentation or assertion, in the future, of claims relating to the same or similar subject matter. If the undersigned has overlooked a relevant disclosure in any of the references, the Examiner is requested to point out specifically where such teaching may be found.

In light of the above amendments and remarks, it is respectfully submitted that all pending claims are allowable. It is respectfully requested that the Examiner reconsider this application and timely allow all pending claims. If the Examiner notes any informalities in the claims, the Examiner is encouraged to contact the undersigned by telephone to expediently correct such informalities.

Respectfully submitted,
SEED Intellectual Property Law Group PLLC


Karl L. Klassen
Registration No. 54,224

KLK:cm

701 Fifth Avenue, Suite 5400
Seattle, Washington 98104
Phone: (206) 622-4900
Fax: (206) 682-6031

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